FORSPAN ASSESSMENT MODEL FOR CONTINUOUS ACCUMULATIONS--BASIC INPUT DATA FORM (NOGA, Version 8, 8-16-02)

IDENTIFICATION INFORMATION

Assessment Geologist:…	J.L. Ridgley	Date:	9/25/2002
Region:……	North America	Number:	5
Province:…….	San Juan Basin	Number:	5022
Total Petroleum System:.	Mancos-Menefee Composite	Number:	502203
Assessment Unit:…….	Dakota-Greenhorn Continuous Gas	Number:	50220363
Based on Data as of:……	PI/Dwights 2001		
Notes from Assessor…..			

CHARACTERISTICS OF ASSESSMENT UNIT

Assessment-Unit type: **Oil** (<20,000 cfg/bo) **or** **Gas** (≥20,000 cfg/bo) Gas

What is the minimum total recovery per cell?… 0.02 (mmbo for oil A.U.; bcfg for gas A.U.)

Number of tested cells:…… 5823

Number of tested cells with total recovery per cell ≥ minimum: …….. 5262

Established (>24 cells ≥ min.) X Frontier (1-24 cells) _____ Hypothetical (no cells) _____

Median total recovery per cell (for cells ≥ min.): (mmbo for oil A.U.; bcfg for gas A.U.)

1st 3rd discovered 1.4 2nd 3rd 0.9 3rd 3rd 0.45

Assessment-Unit Probabilities:

Attribute	Probability of occurrence (0-1.0)
1. **CHARGE:** Adequate petroleum charge for an untested cell with total recovery ≥ minimum ……	1.0
2. **ROCKS:** Adequate reservoirs, traps, seals for an untested cell with total recovery ≥ minimum.	1.0
3. **TIMING:** Favorable geologic timing for an untested cell with total recovery ≥ minimum……..	1.0

Assessment-Unit GEOLOGIC Probability (Product of 1, 2, and 3):……..…… 1.0

4. **ACCESS:** Adequate location for necessary petroleum-related activities for an untested cell with total recovery ≥ minimum …… 1.0

NO. OF UNTESTED CELLS WITH POTENTIAL FOR ADDITIONS TO RESERVES IN THE NEXT 30 YEARS

1. Total assessment-unit area (acres): (uncertainty of a fixed value)
   minimum 2,412,000 median 2,513,000 maximum 2,563,000

2. Area per cell of untested cells having potential for additions to reserves in next 30 years (acres): (values are inherently variable)
   calculated mean 148 minimum 40 median 135 maximum 360

3. Percentage of total assessment-unit area that is untested (%): (uncertainty of a fixed value)
   minimum 60 median 66 maximum 70

4. Percentage of untested assessment-unit area that has potential for additions to reserves in next 30 years (%): (a necessary criterion is that total recovery per cell ≥ minimum) (uncertainty of a fixed value) minimum 46 median 55 maximum 76

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TOTAL RECOVERY PER CELL

Total recovery per cell for untested cells having potential for additions to reserves in next 30 years:
(values are inherently variable)
(mmbo for oil A.U.; bcfg for gas A.U.) minimum 0.02 median 0.4 maximum 8

AVERAGE COPRODUCT RATIOS FOR UNTESTED CELLS, TO ASSESS COPRODUCTS

(uncertainty of fixed but unknown values)

Oil assessment unit:	minimum	median	maximum
Gas/oil ratio (cfg/bo)……..			
NGL/gas ratio (bngl/mmcfg)……			
Gas assessment unit:			
Liquids/gas ratio (bliq/mmcfg)……..	2	4	6

SELECTED ANCILLARY DATA FOR UNTESTED CELLS

(values are inherently variable)

Oil assessment unit:	minimum	median	maximum
API gravity of oil (degrees)……..			
Sulfur content of oil (%)……..			
Drilling depth (m) ……..			
Depth (m) of water (if applicable)……			
Gas assessment unit:			
Inert-gas content (%)……..	0.00	1.20	2.80
CO_2 content (%)……..	0.00	1.10	6.60
Hydrogen-sulfide content (%)……..	0.00	0.00	0.00
Drilling depth (m)……	2000	2200	3000
Depth (m) of water (if applicable)……			

Success ratios:	calculated mean	minimum	median	maximum
Future success ratio (%).....	85	80	85	90

Historic success ratio, tested cells (%).. 90

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ALLOCATIONS OF POTENTIAL ADDITIONS TO RESERVES TO STATES
Surface Allocations (uncertainty of a fixed value)

1. Colorado represents 20.01 areal % of the assessment unit

	minimum	median	maximum
Oil in oil assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……		10	
Portion of volume % that is offshore (0-100%)..		0	

2. New Mexico represents 79.99 areal % of the assessment unit

	minimum	median	maximum
Oil in oil assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……		90	
Portion of volume % that is offshore (0-100%)..		0	

3. _____ represents _____ areal % of the assessment unit

	minimum	median	maximum
Oil in oil assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

4. _____ represents _____ areal % of the assessment unit

	minimum	median	maximum
Oil in oil assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

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5. _____ represents _____ areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

6. _____ represents _____ areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

7. _____ represents _____ areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

8. _____ represents _____ areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

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ALLOCATIONS OF POTENTIAL ADDITIONS TO RESERVES TO LAND ENTITIES
Surface Allocations (uncertainty of a fixed value)

1. Federal Lands represents 44.71 areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……		78	
Portion of volume % that is offshore (0-100%)..		0	

2. Private Lands represents 22.93 areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……		7	
Portion of volume % that is offshore (0-100%)..		0	

3. Tribal Lands represents 27.72 areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……		12	
Portion of volume % that is offshore (0-100%)..		0	

4. Other Lands represents areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

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5. CO State Lands represents 0.49 areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……		0	
Portion of volume % that is offshore (0-100%)..		0	

6. NM State Lands represents 4.16 areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……		3	
Portion of volume % that is offshore (0-100%)..		0	

7. _____ represents _____ areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

8. _____ represents _____ areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

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9. _____ represents _____ areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

10. _____ represents _____ areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

11. _____ represents _____ areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

12. _____ represents _____ areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

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ALLOCATIONS OF POTENTIAL ADDITIONS TO RESERVES TO FEDERAL LAND SUBDIVISIONS
Surface Allocations (uncertainty of a fixed value)

1. Bureau of Land Management (BLM) represents 34.81 areal % of the assessment unit

	minimum	median	maximum
Oil in oil assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……		60.73	
Portion of volume % that is offshore (0-100%)..		0	

2. BLM Wilderness Areas (BLMW) represents areal % of the assessment unit

	minimum	median	maximum
Oil in oil assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

3. BLM Roadless Areas (BLMR) represents areal % of the assessment unit

	minimum	median	maximum
Oil in oil assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

4. National Park Service (NPS) represents 0.00 areal % of the assessment unit

	minimum	median	maximum
Oil in oil assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……		0.01	
Portion of volume % that is offshore (0-100%)..		0	

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5. NPS Wilderness Areas (NPSW) represents _____ areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

Gas in gas assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

6. NPS Protected Withdrawals (NPSP) represents _____ areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

Gas in gas assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

7. US Forest Service (USFS) represents 9.24 areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

Gas in gas assessment unit:			
Volume % in entity……		16.12	
Portion of volume % that is offshore (0-100%)..		0	

8. USFS Wilderness Areas (USFSW) represents _____ areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

Gas in gas assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

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9. USFS Roadless Areas (USFSR) represents _____ areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

10. USFS Protected Withdrawals (USFSP) represents _____ areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

11. US Fish and Wildlife Service (USFWS) represents _____ areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

12. USFWS Wilderness Areas (USFWSW) represents _____ areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

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13. USFWS Protected Withdrawals (USFWSP) represents _____ areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

14. Wilderness Study Areas (WS) represents _____ areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

15. Department of Energy (DOE) represents _____ areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

16. Department of Defense (DOD) represents _____ areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

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17. Bureau of Reclamation (BOR) represents 0.65 areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

Gas in gas assessment unit:			
Volume % in entity……		1.14	
Portion of volume % that is offshore (0-100%)..		0	

18. Tennessee Valley Authority (TVA) represents _____ areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

Gas in gas assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

19. Other Federal represents _____ areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

Gas in gas assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

20. _____ represents _____ areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

Gas in gas assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

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ALLOCATIONS OF POTENTIAL ADDITIONS TO RESERVES TO ECOSYSTEMS

Surface Allocations (uncertainty of a fixed value)

1. Grand Canyon Lands (GDCL) represents 4.94 areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……		4	
Portion of volume % that is offshore (0-100%)..		0	

2. Navajo Canyonlands (NVCL) represents 68.39 areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……		87	
Portion of volume % that is offshore (0-100%)..		0	

3. South-Central Highlands (SCHL) represents 13.83 areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……		4	
Portion of volume % that is offshore (0-100%)..		0	

4. White Mountain-San Francisco Peaks (WMSF) represents 12.84 areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……		5	
Portion of volume % that is offshore (0-100%)..		0	

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5. _____ represents _____ areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

6. _____ represents _____ areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

7. _____ represents _____ areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

8. _____ represents _____ areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

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9. _____ represents _____ areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

10. _____ represents _____ areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

11. _____ represents _____ areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

12. _____ represents _____ areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

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ALLOCATIONS OF POTENTIAL ADDITIONS TO RESERVES TO LAND ENTITIES
Subsurface Allocations (uncertainty of a fixed value)

Based on Data as of: _____

1. All Federal Subsurface represents _____ areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			

2. Other Subsurface represents _____ areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			
Gas in gas assessment unit:			
Volume % in entity……			
Portion of volume % that is offshore (0-100%)..			